**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1 (cancelled)

2 (cancelled)

3 (currently amended) The method of claim [[1]] 19, wherein the distance ~~of each one of the second voxels~~ from the reference surface being determined along a direction of projection.

4 (cancelled)

5 (currently amended) The method of claim [[4]] 19, wherein the distance measure being an Euclidean distance.

6.(cancelled)

7. (currently amended) The method of claim [[1]] 19, wherein the volumetric data being three dimensional microscopy data.

8. (currently amended) A computer program product for volume visualization for extracting meaningful information from 3D volumetric data, the computer program product comprising computer instructions for:

obtaining volume data from a source;

performing image segmentation on the 3D volume data to identify a predetermined feature of the volume data and voxels that defines the surface of the identified predetermined feature of the volume data;

using the defined surface of the identified predetermined feature of the volume data as a reference surface, assigning to one of voxels within the defined surface and voxels without the defined surface a value indicative of the distance of each of the voxels from the defined surface;

volume rendering the 3D volume data to create a 2D image of the 3D volume data;

providing a user interface to enable a user to interactively select a voxel distance of a voxel to the reference surface;

controlling said volume rendering to create a 2D image of the 3D volume data wherein the voxels in the 2D image are all equidistant from the reference surface and thereby constitute a surface parallel to the reference surface spaced therefrom by the selected voxel distance;

creating an output of the 2D image from the volume rendering that is indicative of the surface parallel to the reference surface and spaced therefrom by the selected voxel distance; and

visualizing the output of the volume rendering as a 2D image.

~~comprising a computer readable medium encoded with computer executable instructions for volume visualization, eans for the computer executable instructions performing the steps of following:~~

~~providing of volumetric data, the volumetric data having first voxels belonging to a reference surface, the reference surface being a surface of a body structure;~~

~~entering a user selected distance by means of user interface means comprising a wheel mouse, an amount of rotation of the wheel of the wheel mouse being indicative of the user selected distance, the user selected distance measured from the surface of the body structure;~~

~~determining of second voxels of the volumetric data, wherein the second voxels are spaced the user selected distance from the reference surface, the second voxels belonging to the body structure; and~~

~~visualizing of the second voxels in a 2 dimensional image, wherein the 2 dimensional image is located at the user selected distance from the surface of the body structure.~~

9. (currently amended) The computer program product of claim 8, ~~the program means being adapted to perform a segmentation of the volumetric data to identify the first voxels~~ comprising further instructions for of controlling said volume rendering via the user interface to create a series of 2D images of the 3D volume data wherein voxels in each 2D image are all equidistant from the reference surface, the voxel distances for the 2D images of the series are different so that a series of surfaces parallel to the reference surface are obtained, each spaced by a different voxel distance.

10. (cancelled)

11. (cancelled)

12. (cancelled)

13. (currently amended) The method of claim [[1]] 20, wherein the body structure is an organ or other pathological structure.

14. (currently amended) The ~~method~~ computer program product of claim 8, wherein the volumetric data is medical image data.

15. (currently amended) The method of claim [[8]] 21, wherein the body structure is an organ or other pathological structure.

16. (cancelled)

17. (cancelled)

18. (currently amended) The method of claim [[1]] 19 further comprising the step of reformatting the volumetric data to group the voxels according to values indicative of the distance of the voxels from the defined surface distance ~~by moving the first voxels to a common row of a single slice and moving the plurality of voxels of the volumetric data such that a distance from each of the plurality of voxels to the reference surface remains the same.~~

19. (new) A method of volume visualization for extracting meaningful information from 3D volumetric data comprising:

obtaining volume data from a source;

performing image segmentation on the 3D volume data to identify a predetermined feature of the volume data and voxels that defines the surface of the identified predetermined feature of the volume data;

using the defined surface of the identified predetermined feature of the volume data as a reference surface, assigning to one of voxels within the defined surface and voxels

without the defined surface a value indicative of the distance of each of the voxels from the defined surface;

volume rendering the 3D volume data to create a 2D image of the 3D volume data;

providing a user interface to enable a user to interactively select a voxel distance of a voxel to the reference surface;

controlling said volume rendering to create a 2D image of the 3D volume data wherein the voxels in the 2D image are all equidistant from the reference surface and thereby constitute a surface parallel to the reference surface spaced therefrom by the selected voxel distance;

creating an output of the 2D image from the volume rendering that is indicative of the surface parallel to the reference surface and spaced therefrom by the selected voxel distance; and

visualizing the output of the volume rendering as a 2D image.

20. (new) A method of volume visualization for extracting meaningful information from 3D volumetric medical data comprising:

subjecting a patient to a scanning technique to obtain a sequence of 2D slices of a pre-selected body portion containing one of an organ, anatomic and pathologic feature of the patient;

manipulating said sequence of 2D slices to obtain 3D volume data,

performing image segmentation on the 3D volume data to identify one of an organ, anatomic and pathologic feature of the patient and determining from the portion of the 3D volume data that constitutes the identified one of an organ, anatomic and pathologic feature of the patient the surface of the one of an organ, anatomic and pathologic feature of the patient;

using the determined surface of the one of an organ, anatomic and pathologic feature of the patient as a reference surface, assigning to one of voxels within the determined surface and voxels without the determined surface a value indicative of the distance of the voxel from the determined surface;

volume rendering the 3D volume data to create a 2D image of the 3D volume data;

providing a user interface to enable a user to interactively select a voxel distance of a voxel to the reference surface;

controlling said volume rendering to create a 2D image of the 3D volume data wherein voxels in the 2D image are all equidistant from the reference surface and thereby

constitute a surface parallel to the reference surface spaced therefrom by the selected voxel distance;

creating an output of the 2D image from the volume rendering that is indicative of the surface parallel to the reference surface and spaced therefrom by the selected voxel distance; and

visualizing the output of the volume rendering as a 2D image.

21. (new) A method of volume visualization for extracting meaningful information from 3D volumetric medical data comprising:

subjecting a patient to a scanning technique to obtain a sequence of 2D slices of a pre-selected body portion containing one of an organ, anatomic and pathologic feature of the patient;

manipulating said sequence of 2D slices to obtain 3D volume data,

performing image segmentation on the 3D volume data to identify one of an organ, anatomic and pathologic feature of the patient and determining from the portion of the 3D volume data that constitutes the identified one of an organ, anatomic and pathologic feature of the patient the surface of the one of an organ, anatomic and pathologic feature of the patient;

using the determined surface of the one of an organ, anatomic and pathologic feature of the patient as a reference surface, assigning to one of voxels within the determined surface and voxels without the determined surface a value indicative of the distance of the voxel from the determined surface;

volume rendering the 3D volume data to create a 2D image of the 3D volume data;

providing a user interface to enable a user to interactively select a voxel distance to the reference surface by means of a wheel mouse, the rotation of the wheel of the wheel mouse being correlated with the user's selection of a voxel distance;

controlling said volume rendering via the user interface to create a 2D image of the 3D volume data wherein voxels in the 2D image are all equidistant from the reference surface and thereby constitute a surface parallel to the reference surface spaced therefrom by the selected voxel distance;

creating an output of the 2D image from the volume rendering that is indicative of the surface parallel to the reference surface and spaced therefrom by the selected voxel distance; and

visualizing the output of the volume rendering as a 2D image.

22. (new) Method according to claim 19 including the following step of controlling said volume rendering via the user interface to create a series of 2D images of the 3D volume data wherein voxels in each 2D image are all equidistant from the reference surface, the voxel distances for the 2D images of the series are different so that a series of surfaces parallel to the reference surface are obtained, each spaced by a different voxel distance.

23. (new) Method according to claim 20 including the following step of controlling said volume rendering via the user interface to create a series of 2D images of the 3D volume data wherein voxels in each 2D image are all equidistant from the reference surface, the voxel distances for the 2D images of the series are different so that a series of surfaces parallel to the reference surface are obtained, each spaced by a different voxel distance.

24 (new) A system for volume visualization for extracting meaningful information from 3D volumetric data comprising:

means for obtaining volume data from a source;

means for performing image segmentation on the 3D volume data to identify a predetermined feature of the volume data and voxels that defines the surface of the identified predetermined feature of the volume data;

means for using the defined surface of the identified predetermined feature of the volume data as a reference surface, assigning to one of voxels within the defined surface and voxels without the defined surface a value indicative of the distance of each of the voxels from the defined surface;

volume rendering the 3D volume data to create a 2D image of the 3D volume data;

means for providing a user interface to enable a user to interactively select a voxel distance of a voxel to the reference surface;

means for controlling said volume rendering to create a 2D image of the 3D volume data wherein the voxels in the 2D image are all equidistant from the reference surface and thereby constitute a surface parallel to the reference surface spaced therefrom by the selected voxel distance;

means for creating an output of the 2D image from the volume rendering that is indicative of the surface parallel to the reference surface and spaced therefrom by the selected voxel distance; and

means for visualizing the output of the volume rendering as a 2D image.

25. (new) A system for volume visualization for extracting meaningful information from 3D volumetric medical data comprising:

means for subjecting a patient to a scanning technique to obtain a sequence of 2D slices of a pre-selected body portion containing one of an organ, anatomic and pathologic feature of the patient;

means for manipulating said sequence of 2D slices to obtain 3D volume data,

means for performing image segmentation on the 3D volume data to identify one of an organ, anatomic and pathologic feature of the patient and determining from the portion of the 3D volume data that constitutes the identified one of an organ, anatomic and pathologic feature of the patient the surface of the one of an organ, anatomic and pathologic feature of the patient;

means for using the determined surface of the one of an organ, anatomic and pathologic feature of the patient as a reference surface, assigning to one of voxels within the determined surface and voxels without the determined surface a value indicative of the distance of the voxel from the determined surface;

means for volume rendering the 3D volume data to create a 2D image of the 3D volume data;

means for providing a user interface to enable a user to interactively select a voxel distance of a voxel to the reference surface;

means for controlling said volume rendering to create a 2D image of the 3D volume data wherein voxels in the 2D image are all equidistant from the reference surface and thereby constitute a surface parallel to the reference surface spaced therefrom by the selected voxel distance;

means for creating an output of the 2D image from the volume rendering that is indicative of the surface parallel to the reference surface and spaced therefrom by the selected voxel distance; and

means for visualizing the output of the volume rendering as a 2D image.

26. (new) A system for volume visualization for extracting meaningful information from 3D volumetric medical data comprising:

means for subjecting a patient to a scanning technique to obtain a sequence of 2D slices of a pre-selected body portion containing one of an organ, anatomic and pathologic feature of the patient;

means for manipulating said sequence of 2D slices to obtain 3D volume data,
means for performing image segmentation on the 3D volume data to identify one of an organ, anatomic and pathologic feature of the patient and determining from the portion of the 3D volume data that constitutes the identified one of an organ, anatomic and pathologic feature of the patient the surface of the one of an organ, anatomic and pathologic feature of the patient;
means for using the determined surface of the one of an organ, anatomic and pathologic feature of the patient as a reference surface, assigning to one of voxels within the determined surface and voxels without the determined surface a value indicative of the distance of the voxel from the determined surface;
means for volume rendering the 3D volume data to create a 2D image of the 3D volume data;
means for providing a user interface to enable a user to interactively select a voxel distance to the reference surface by means of a wheel mouse, the rotation of the wheel of the wheel mouse being correlated with the user's selection of a voxel distance;
means for controlling said volume rendering via the user interface to create a 2D image of the 3D volume data wherein voxels in the 2D image are all equidistant from the reference surface and thereby constitute a surface parallel to the reference surface spaced therefrom by the selected voxel distance;
means for creating an output of the 2D image from the volume rendering that is indicative of the surface parallel to the reference surface and spaced therefrom by the selected voxel distance; and
means for visualizing the output of the volume rendering as a 2D image.

27. (new) A system according to claim 24 further including means for controlling said volume rendering via the user interface to create a series of 2D images of the 3D volume data wherein voxels in each 2D image are all equidistant from the reference surface, the voxel distances for the 2D images of the series are different so that a series of surfaces parallel to the reference surface are obtained, each spaced by a different voxel distance.

28. (new) A system according to claim 25 further including means for controlling said volume rendering via the user interface to create a series of 2D images of the 3D volume data wherein voxels in each 2D image are all equidistant from the reference surface, the voxel

distances for the 2D images of the series are different so that a series of surfaces parallel to the reference surface are obtained, each spaced by a different voxel distance.